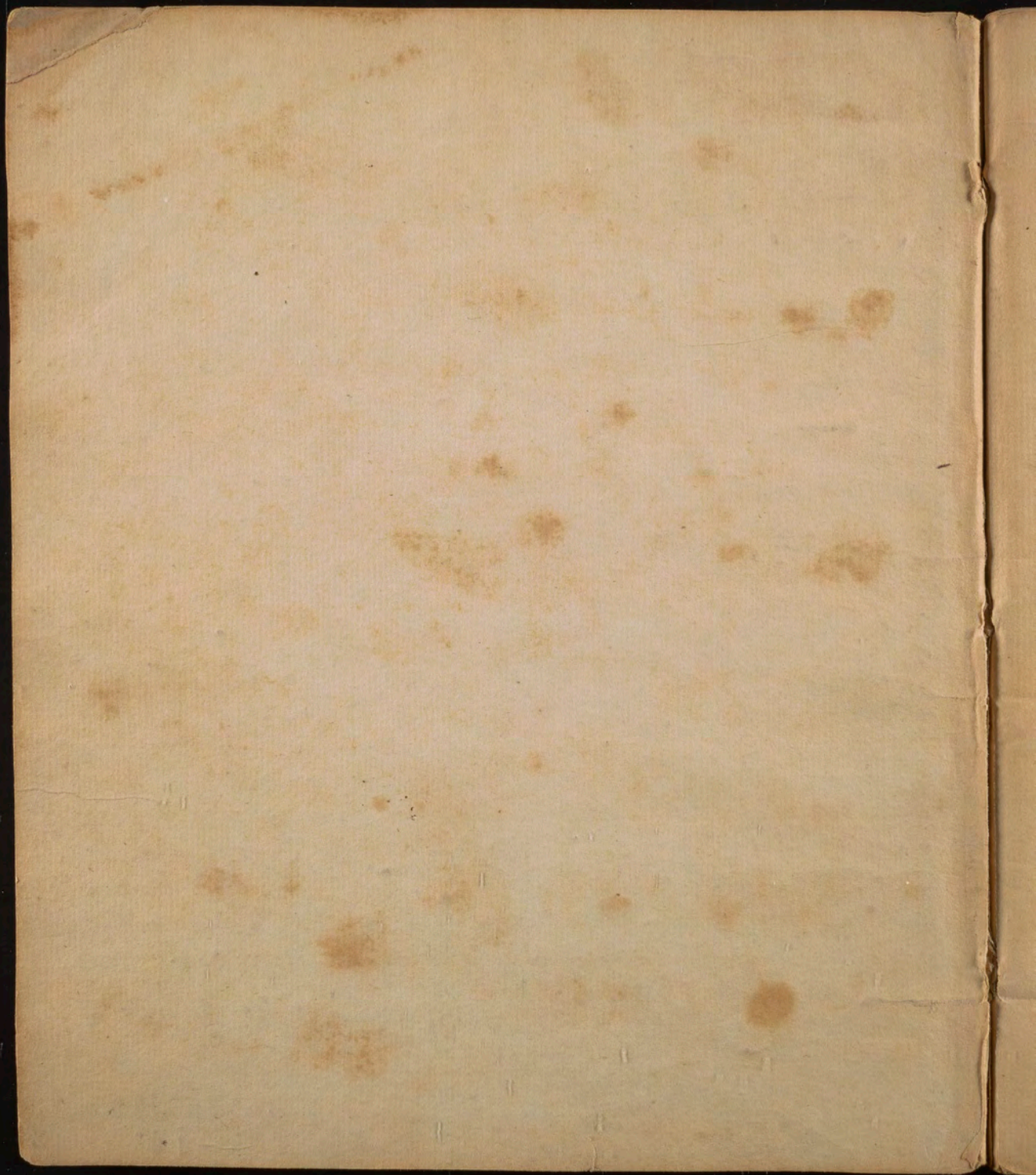


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of animal life continued

of animal life in Drowning  
and freezing. — 93.

of Do in different nations

among Indians — 100

— of the inhabitants of } 102  
hot Countries. — }

— Cold Do — 103

— Eastern Countries 105

— poor every where 109

— Free Countries 110

Mental Stimuli 112

Love of money 112

— Same 114

Diff<sup>r</sup> Religions 114

of animal life in other  
Animals — 118.

of animal heat 130



*[Faint, illegible handwriting in cursive script, likely a letter or manuscript page.]*



Death which ensues from fasting is not occasioned by the Absence of the Stimulus of food, or blood. Dispositions shew no Defect of the latter in the large <sup>veins</sup> ~~blood vessels~~. It is but <sup>impression</sup> wholly by the excessive ~~stimulus~~ of the ~~the~~ acting stimuli which I have mentioned. —

The Absence of the Stimulus of food in <sup>fevers</sup> ~~diseases~~ and other diseases of long duration is supplied by the blood acting upon <sup>the</sup> highly <sup>excited</sup> ~~the~~ blood stimulus of pain from all its <sup>repels,</sup> various causes, - by heat ~~see~~ in febrile diseases, - and by stimulating drinks and medicines. — In Madness the Absence of the Stimulus of food when it occurs, is supplied by



*[Faint, illegible handwriting in cursive script, likely a historical document or letter. The text is written in dark ink on aged, yellowed paper. There are several lines of text, but the characters are too faded to transcribe accurately. A small, dark, irregular mark is visible near the center of the page.]*



morbid & action in the blood vessels  
the stimulators of <sup>a</sup> false perceptions  
of the brain, <sup>by</sup> in the understanding, or by <sup>be</sup> unruly  
passions. —

4 We come now to a most difficult  
inquiry, and that is, how is life sup-  
ported in that total Abstraction  
of external & internal Stimuli  
which takes place in Asphyxia,  
as Drowning. <sup>by freezing -</sup> I answer, it,  
by observing that <sup>perfect</sup> life consists in  
two things viz:  
excitement and excitability. They  
are as we shall say hereafter, frequent-  
ly exchanged into each other. For  
~~a~~ supposed sudden deaths from  
grief - joy - or Drowning there is a  
sudden Abstraction of excitement,



*[Faint, illegible handwriting in cursive script, likely bleed-through from the reverse side of the page.]*

to



But the excitability remains for  
 minutes, - and it is said for even  
 hours afterwards, ~~according to~~ <sup>if</sup> the  
 destruction of the excitement has not  
 been attended by any injury to the  
 organs of the system, nor by great  
 degrees of ~~terrors~~ fear or terror, ~~both~~  
~~of which~~ or by such exertions of the  
 body as waste the excitability. For  
 example - if a person falls from  
 a great height into the water <sup>so as</sup> ~~as~~  
 to bruise himself by his fall, - <sup>or</sup> if he is  
 survives a fall into the water, long  
 enough to give his fears time to act  
 upon <sup>his system</sup> ~~him~~ - and above all, if  
 he has ~~attempted~~ perished after  
 attempting to save himself by







swinging ~~med~~ for half an hour or an  
 hour, there can be but little hope  
 of his recovery, for the organic struc-  
 -ture of the body is destroyed in the  
 first instance, and in the two latter  
 instances, the excitability of the system  
 is entirely dissipated, - so that the  
 stimuli which preserve life have  
 nothing to act upon. - I shall illustrate  
 my meaning, by a familiar example.  
 - Suppose the wick of a candle to be  
 dipped in a vial of Ether, & afterwards  
 to be exposed to the Air. The Ether  
 in this case is the excitability of the  
 candle. The ~~wick~~<sup>candle</sup> in its sound state  
 is its excitement,<sup>now</sup> if a ~~new~~ lighted  
 candle be bro't in contact with the



*[Faint, illegible handwriting in a cursive script, likely from a 19th-century manuscript. The text is written in brown ink on aged, yellowed paper. The handwriting is very light and difficult to decipher, but appears to be a continuous paragraph or list of entries.]*



Vapor of the Ether, ~~which~~ it immediately  
 takes fire; and communicates its blaze  
 to the wick of the candle. But if this  
 wick, or the tallow of the candle have  
 been deprived of their inflammability,  
 for which <sup>answers</sup> ~~excites~~ to the excitement  
 of the body) by being previously wetted  
 with water - it will be impossible to  
 excite ~~a~~ them into a flame. The Ether  
 in this <sup>case</sup> will be consumed or wasted,  
 but it will make no impression  
 upon the candle. - This <sup>simile</sup> ~~illustration~~  
 will apply further, & serve to illustrate  
 the volatile nature of the excitabi-  
 -lity of the body, when it is deprived  
 of ~~the~~ its constant resource in the  
 excitement of the system. ~~As~~ To <sup>inflame</sup> ~~pro~~



✓ The stimuli which act most  
speedily in this case are gentle heat  
& exercise, and all such <sup>others</sup> ~~as~~ <sup>canal</sup> ~~as~~ <sup>into</sup>  
rouse the lungs & alimentary <sup>into</sup>  
action. Here then our theory receives  
new strength - for we here behold ani-  
mal life - more than preserved - we  
see it restored by stimuli acting upon  
the excitab<sup>y</sup> of the system, and gradually  
converting it into excitement. —



the Altar, the lighted candle must be  
 lost in contact with it ~~soon~~ after its  
 before it has time to exhale in the air.  
 In like manner - Stimuli must be  
 applied to the excitability of the <sup>body</sup> system  
 immediately after it is taken out of  
 the water, ~~or it will be~~ otherwise they  
 will be applied in vain. - ~~for it soon~~

In Asphyxia particularly in that  
 species which we call a Trance - the  
 state of the system is nearly the same  
 as in drowning - but this <sup>phenomenon</sup> ~~disorder~~  
 sometimes comes on in the close of  
 slow fever which have <sup>both</sup> reduced the  
 excitement & wasted the excitab.  
 of the system. Now is animal life  
 in this case supported or restored by



v This was evident from heat con-  
-tinuing near the heart - or from  
the body not <sup>having</sup> acquired <sup>the</sup> stiffness  
which ~~was~~ always accompanies  
death. — It is certain they hear  
and think - the mind here reacts. see  
facts of Jos Rush - The German - & the  
unmixed extract from DeCreston's work.



Stimuli? I answer that in all the  
 traces I have ever heard of, there was  
 reason to believe <sup>1<sup>st</sup></sup> that no injury  
 had been done to any of the Organs  
 of the body. & <sup>2<sup>nd</sup></sup> that there were con-  
 siderable portions of excitab<sup>le</sup> - and  
 excitement <sup>left</sup> in the system. and <sup>3<sup>rd</sup></sup>  
 that the recovery was effected either by  
 the stimulus of or  
 heat - of pure air [or by the impulse  
 of a divine communication to the  
 soul - (as in miraculous <sup>resuscitations</sup> indirectly  
 - for this last is as ~~certainly~~  
 stimulating to the body as any of the  
 common <sup>reflex</sup> actions of the Understanding  
 or passions. & Here then as in the  
 former case life is ~~so~~ not only  
 preserved, but restored by the action  
 of Stimuli. -



The conclusion yet to be reached is  
that the human mind is not a  
tabula rasa, but is filled with  
ideas and impressions from birth.  
The mind is a complex of  
ideas and impressions, and the  
process of learning is the process  
of organizing these ideas and  
impressions into a coherent  
system. The mind is not a  
passive receptacle, but an active  
organism, and the process of  
learning is the process of  
growth and development.  
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learning is the process of  
growth and development.



It remains yet to inquire how under  
 this head - how is life supported, or  
<sup>restored</sup> ~~supported~~ in that abstraction of heat  
 and in consequence of it, - in that  
 suspension of all the actions of the  
 heart - and lungs? - ~~answer that~~ <sup>which takes</sup>  
~~where the place in freezing?~~ I  
 answer, - that when the ~~the~~ cold acts  
 suddenly upon the body <sup>and in such</sup> ~~before there~~  
 there is a manner as not to destroy  
 any organic parts - the excitability is  
 accumulated as in the recoverable  
 cases of drowning I mentioned, - and  
 life is restored by the ~~the~~ <sup>the</sup> frictions of  
 heat, & gentle frictions applied to  
 the body. - The heat for this purpose  
 should be accommodated to the



✓ I am so perfectly satisfied that life  
is suspended only in freezing where  
it takes place suddenly; that I believe  
it possible for the body to remain  
in that state for many years without  
the extinction of life. In the improve-  
ments of philosophy <sup>particularly of medicine</sup> ~~and this~~ which  
remain yet to be made, <sup>with J. Hunter</sup> I think it  
probable that <sup>with</sup> men will have  
it in <sup>their</sup> power to change the  
age in which they are to live.  
What think you gent: of suspen-  
ding your existence <sup>by means of the sudden</sup> ~~during the~~  
<sup>application of cold</sup> ~~during the~~ application of cold, during the  
<sup>agreedly to the cold idea of</sup>  
~~Mr. Hunter~~ present turbulent state of our  
world, and bequeating a sum of



excitability in the system. That of  
pumps or Spring water is generally  
warm ~~and~~ in the first instance  
<sup>Let us next</sup> ~~It remains yet to inquire~~ <sup>how</sup>

far our theory will apply in explaining  
the state of animal life in all the different  
circumstances in which <sup>it</sup> exists in the  
inhabitants of different parts of the  
globe, ~~and of certain animals of~~

1 For the Indians of the northern <sup>of America</sup> lati-  
tudes there is a defect of the stimulus  
of <sup>heat in winter - of</sup> ~~regular~~ regular meals & of the  
Understanding - and among some Nations  
of all ~~the~~ emotion - for they hold it  
disgraceful to show any outward signs  
of anger - joy - & even of tender or  
domestic affections. This Character of

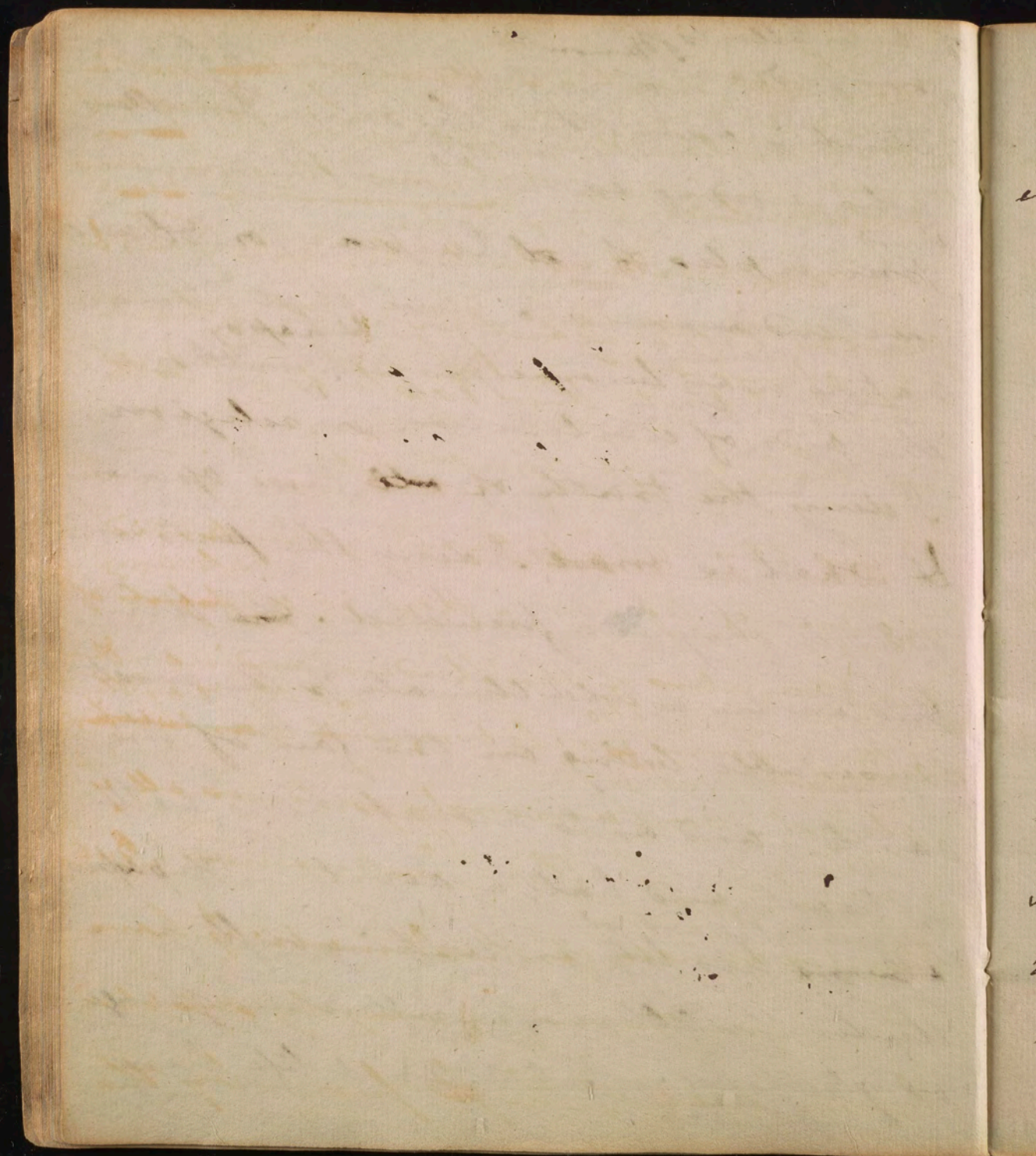


Money to be applied an hundred  
years hence, to awaken you to  
behold our world in <sup>that</sup> a state of order,  
peace & universally happiness  
which ~~we have reason to believe~~  
~~the prophets assure us~~  
will probably take place within  
that period of time? —



of the intellects, <sup>known</sup> 101  
our Indians, is very contrary to that  
which is given them by some Travellers,  
who according as they have embraced the  
<sup>absurd</sup> principles of ~~Vol~~ Ruciscan, or Voltaire  
have endeavoured to prove that human  
nature may become perfect, <sup>& happy</sup> without  
the aids of civilization or religion.  
I deny the truth of ~~all~~ these opinions,  
& what is more, I deny the facts on  
which they are founded. ~~The~~ An  
Indian in a cold climate is the most  
miserable being on the face of the  
earth - and as to morals, he is half  
or least - and half a devil. - He passes  
the greatest part of  
~~always~~ his life in waking or sleeping  
under the alternate influence of hunger,  
or gluttony. - But animal life here







does not want a sufficient ~~flame~~ <sup>violent</sup> portion  
 of Stimuli. It is kept up by the ~~prop~~ <sup>violent</sup>  
<sup>exercise</sup> with which they <sup>hunt</sup>, and ~~the~~ <sup>their</sup> furious  
~~passions with which they carry on their war~~  
 by the extravagant joy with which  
<sup>afterwards</sup> they celebrate their exploits in both  
 in their savage dances & songs. —

2 In the inhabitants of the torrid  
 regions of Africa, — there is a <sup>deficiency</sup> ~~defect~~ of  
 the Stimulus of the Understanding — &  
 of the passions, <sup>also</sup> of labor, <sup>for the earth</sup> ~~But their weakness~~  
 almost spontaneously produces all y:  
 is necessary for their sustenance. But  
 the weakness of the Stimuli y have  
 been mentioned, is amply supplied  
 by the heat of the ~~the~~ sun, — by the







Spices which they mix with their  
 diet, - and by the passion for musical  
 sounds which so universally charac-  
 -terises them <sup>afican</sup> ~~and~~ nations.

3 In Greenland - the Sun affords but  
 a feeble stimulus in summer, and du-  
 -ring a long winter, he leaves the body  
 human body exposed to the sedative  
 action of the most intense cold. Hence  
 the pulse of a Greenlanders seldom beats  
 more than 40, or 50 strokes in a mi-  
 -nute. But the absence of this stimulus  
 is supplied by the heat of their stove  
 rooms, by the perspiration of their  
 bodies confined by ~~few~~ garments  
 of hair & fur - and by the passion



*[Faint, illegible handwriting in cursive script, likely a letter or journal entry. The text is written in brown ink on aged, yellowed paper. A small, dark, vertical mark is visible near the center-right of the page.]*



104  
Nature of their <sup>104</sup>food<sup>aliments</sup> - which consists  
chiefly of animal food, ~~and~~ of dried  
fish - and of whale oil. - This last  
article of Diet is preferred by them in  
the <sup>20</sup>most ~~varied~~ state - that Counts  
informs us that the preparation<sup>ch.</sup>  
they discharge after eating it is so  
acid, as to render their Chambers  
offensive and even intolerable to an  
European. - I need hardly <sup>diffusible</sup> add that  
an Aliment prepared of such Qualities  
cannot fail of being highly stimu-  
lating. —

It is remarkable that the Diet  
of all the Northern Nations of Europe  
consists chiefly of stimulating ani-  
mal or vegetable food, and that the  
use of stimulating spirits or liquors is universal  
among them.



✓ There is likewise a general defini:  
=ing among <sup>some</sup> classes of them of ~~the~~<sup>a</sup>  
Stimulus from the exercise of the  
Understanding. —



Let us next turn our eyes to the  
 the miserable inhabitants of the East-  
 ern Countries. — Here we behold life  
 in its most feeble state  
~~struggling to maintain itself not~~  
 only from <sup>of</sup> ~~the~~ <sup>physical</sup> ~~of~~ <sup>several</sup>  
~~only against natural, but against~~  
 other stimuli which operate upon the  
 inhabitants of other parts of the world.  
 Among the poor people of Turkey there is  
 a general deficiency of aliment. — Mr Vol-  
 ley in his truly philosophical travels  
 informs <sup>us</sup> <sup>dict of the</sup> that the Bedouins in Syria  
 "seldom exceed six ounces in a day, &  
 that it consists of six or seven dates  
 soaked in butter milk, and afterwards  
 mixed with a little sweet milk, or  
 Curds." — But this not all —  
 The despotism of the Government  
 of Turkey, <sup>annihilates</sup> ~~is all its extent~~ weakens



*[Faint, illegible handwriting, likely bleed-through from the reverse side of the page.]*



domestic, ~~and~~ annihilates all that  
 extensive source of stimuli which arises  
 from the exercise of the domestic &  
 public Affections. — A Turk lives only

to himself, <sup>In point of time he occupies only</sup> ~~and to the moment in which~~  
~~the moment in which he exists — for his futurity~~  
~~he exists.~~ <sup>as to life & property belongs wholly to his</sup> ~~as to life & property belongs wholly to his~~  
~~and hopes for nothing beyond the~~  
~~present moment~~ <sup>master.</sup> — Fear is the debilita-

-ting principle of his Actions, and heaves  
<sup>a single pulsation</sup>  
<sup>and joy</sup> which comes to never add ~~one~~ <sup>one</sup> passion

to ~~the~~ his heart. The Tyranny even im-  
 -poses a  
~~restraint upon~~ <sup>restraint upon</sup> the stimulants  
 which arises  
 from conversation, — ~~and~~ <sup>but</sup> when they

Speak Volney tells us it is with a  
 slow feeble voice — as if the lungs <sup>wanted</sup> ~~were~~  
~~devoid of the strength to propel~~  
 air into thro' the glottis to form dis-  
 -tinct Articulate Sounds. But the



*[Faint, illegible handwriting in cursive script, likely a letter or journal entry. The text is written in brown ink on aged, yellowed paper. The handwriting is very light and difficult to decipher.]*



167  
effects of the Absence of the Stimuli that  
have been mentioned do not stop  
here. "~~They~~<sup>adds</sup> The same traveller that they  
are slow in all their motions - that  
their bodies are small - that they have  
small evacuations - that their blood  
is so destitute of Lixivosity, that nothing but  
the greatest heat can preserve its fluidity -  
- and that they are rather active, <sup>than</sup> and  
vigorous - but that under all these  
circumstances of deficient Stimuli they  
are still healthy." This should not sur-  
-prise us, for health and even long life  
do not depend so much upon the strength  
of the Constitution as upon a due &  
exact proportion being kept up between  
the Quantity of Strength & the Number  
and force of Stimuli which act upon it.







The Absence of all the stimuli which I have mentioned in the Turks is supplied by 1 The heat of their Climate - 2 <sup>by</sup> their universal passion for musical sounds - 3 <sup>by</sup> their equally universal passion for Dress. - 4 <sup>by their passion of fashionable</sup> ~~their universal passion for~~ and Universal order in the pursuit of Venereal pleasures, and 5 by the general use of Coffee or Opium. -

5 Many of the Observations which have made upon the Inhabitants of <sup>Africa</sup> ~~Europe~~, and of the Turkish dominions apply to the inhabitants of China & the East Indies. - They want the stimulus of animal food in many instances, ~~and~~ as well as those which arise from the exercise of public affections. <sup>But</sup> They are ~~here~~ supplied by 1 <sup>by the heat of climate</sup> 2 <sup>by</sup> vegetable in many places.







109  
Aliment which abounds with nourishment  
particular viz: Rice - and Beans. & by  
the general use of tea in China, & of  
stimulating  
Coffee made of the dried & toasted  
seeds of the Stramonium in  
the countries in the neighbourhood of  
the Indian coast. Some of these nations  
chew likewise strong stimulating Substan-  
ces as we do tobacco. —

Among the poor and miserable in  
the ~~wild~~ nations of E who inhabit  
the middle & Southern parts of Europe  
the deficiency of <sup>the stimulus of</sup> wholesome & ~~animal~~  
food - <sup>of clothing & of fuel - &</sup> the want of ~~labor~~ liberty - and  
the ~~are~~ <sup>is</sup> in part supplied by ~~the~~ in  
some countries by the invigorating  
influence of the Christian religion  
upon animal life - and in others,



✓ It is remarkable that the use of each of these stimuli is greatly influenced by the circumstances of Climate. In cold climates where the earth yields its increase with reluctance, & where vegetable Aliment is scarce, - the deficiency of that distention which it is principally calculated to produce, is sought for in the stimulus of ardent spirits. To the southward of 40. the deficiency of ~~all~~ the stimuli of Aliment is sought for in Onions - Garlic - or Tobacco. But further - a uniform Climate calls for more of these artificial stimuli than a variable One - for the Alternate action of heat - cold - winds <sup>upon the body,</sup> & rain, supplies their place. A Savage, ~~and~~



110.  
by — the general use of Malt Liqueurs, <sup>tobacco</sup>  
tea, coffee, garlic, onions and Opium &  
and Ardent Spirits. ✓

In no part of the world is Animal life  
as far as it respects the human species in  
a more perfect state — than in <sup>France,</sup> Britain,  
Ireland, and the United States. ~~The~~ <sup>inhabitants</sup>  
~~inhabitants~~ with all the external and  
internal <sup>stimuli</sup> which have been mentioned,  
the inhabitants of those countries.  
~~they~~ enjoy the additional stimulus of  
freedom. — How <sup>numerous & wonderful</sup> ~~innumerable~~ are  
Dr Haller says — most longevity in Brit & Irel. p: 107  
the actions of life, to which even are  
vol 8 p 2. <sup>and possession of</sup>  
prompted by ~~the~~ <sup>the</sup> love of the transcendent  
blessings of liberty! — But to produce the  
most salutary influence on the system,  
it is necessary that <sup>this passion</sup> ~~it~~ should be exercised  
in a Republic. — There is an indissoluble  
Union between moral, political, &  
Physical Good, and had I been convinced



and an  
1. ignorant life calls for these stimuli  
✓ There is ~~one stimulus introduced~~  
~~coming unbidden by opposition and~~  
~~commence~~ ~~abstracts~~ <sup>alike upon</sup> ~~the~~  
more than a life which is enlightened  
& civilized - Hence the inordinate  
Attachment of the Indians to Rum &  
Tobacco. It would seem from these  
facts that man cannot exist without  
<sup>of some kind</sup>  
Sensation, & that when it is not  
derived from natural stimuli, it  
will always be sought from such  
as are artificial. —

✓ Exploits performed by the french armies  
will during their present wars, <sup>will</sup>  
<sup>prove</sup> ~~establish~~ the truth as to the <sup>of life being</sup> ~~quantity~~ <sup>to be</sup> ~~of~~  
the history of the state of Connecticut  
will ~~potentially~~ <sup>prove its</sup> ~~truth of the~~ <sup>duration</sup>  
of human life <sup>to be</sup> ~~being~~ <sup>longest in</sup> ~~republican~~  
~~state.~~



that a republican government was <sup>most</sup> ~~not~~  
favourable to industry - morals - and  
political happiness, I should have in-  
ferred a priori that it <sup>must be</sup> most favourable  
to animal life - But - I shall not  
~~in a future lecture~~ offer this interesting question to rest  
upon analogical induction. ~~I shall here-~~  
~~after prove that there is the greatest~~  
<sup>to</sup> ~~human~~ <sup>Animal life</sup> quantity of life exists in the greatest  
quantity & for the longest time in a  
republican state. ~~The history of the~~ ✓

~~It remains now only to inquire~~  
~~how far the phenomena of~~  
~~into the realm of Animal life in other~~  
~~Animals besides man accord with the~~  
~~theory I have endeavored to establish.~~

~~There is one stimulus~~

Besides the stimuli which  
operate on individual nations, and



V 1 The desire of life. This acts nearly  
alike upon all ages and conditions of man-  
kind, and is a very powerful stimulus in  
supporting our existence. It is often visible  
in the prolongation of life in <sup>dying</sup> parents who  
send for their <sup>about</sup> children. ~~in~~ many instances  
have occurred of their living under the most  
improbable circumstances, until they have  
embraced their ~~children~~ <sup>of their</sup> children, and <sup>experiencing a few</sup>  
<sup>sickly</sup> afterwards. ~~Parents~~ <sup>Often live under</sup> <sup>meanings</sup>  
circumstances of the greatest ~~danger~~ <sup>danger</sup> till  
they reach their native shore, & then breathe  
their last in the bosom of their friends. This  
Desire of life by its vehemence, often turns  
the scale in favor of <sup>a recovery</sup> life in acute diseases,  
and the chance is always in favor of a  
recovery in proportion to the anxiety a  
patient discovers to live. Atticus we  
are told died by a voluntary abstinence



which are influenced by local, or political circumstances, there are certain mental stimuli which operate in different nearly alike upon the individuals of all the nations of the world. — These are ✓

2 The <sup>love of money.</sup> ~~love of money~~. It is peculiar to this passion to set the whole machine of Society in motion. Hearts which are insensible of the stimulus of religion - patriotism - love - & even of domestic affections, are excited into action by this passion. The history of the coffee house in the city of Philadelphia between the 10<sup>th</sup> and the 15<sup>th</sup> of Aug<sup>r</sup> in the year 1791 will bring the names of ~~broken~~



from food in five days. - ~~in his~~ <sup>In his</sup> ~~in~~ <sup>Granhamilton</sup>  
his An<sup>r</sup> of the Earthquake at Calabria  
relates a ~~fact~~ <sup>fact</sup> of a girl who lived 11 days  
without food. In the former case life  
was shortened by ~~the want of desire for it~~ <sup>an aversion from</sup> - in  
the latter it was protracted by the ~~want~~ <sup>desire</sup>  
of life it. Story of Bisfoot - negroes - & anim. magne.  
- <sup>troni.</sup>

<sup>but further</sup>  
✓ The love of money discovers its stimulants  
upon the system in a peculiar manner  
in the games of Cards & Dice. I have heard  
of a Gent<sup>n</sup> in Virginia who passed two whole  
nights without sleep at a card table - and  
it is related in the life of the celeb<sup>r</sup> ~~voted~~  
<sup>a noted gambler</sup> Major Bagg<sup>s</sup> in Ireland, that when he was  
so ill as to be unable to rise from his chair,  
he was bro<sup>t</sup> to the hazard table, where he  
has seemed suddenly to revive at the rattling  
of the dice".

3 Public Amusements of all kinds. -  
<sup>a chase -</sup>  
a horse-race - a cock-pit - the theatre -



remembered by contemplative men  
 for having furnished the most ex-  
 traordinary proofs of the powerful  
 stimulus of the love of money upon  
 the human body. — <sup>It composed the</sup> ~~You would have~~  
 been of Scipion's medicine in the month of August  
~~1791~~ <sup>It produced a fever in</sup>  
 one, ~~instance~~ an obstinate Wakeful-  
 ness in another — and a Mania in  
 a third person <sup>all of whom</sup> ~~under my~~  
 care as patients. — The ~~who~~ anxiety  
~~which was~~ <sup>of</sup> ~~presented in many~~ <sup>of</sup> ~~crum ten arose~~ — the  
<sup>& irregular</sup> quick motions of the desultory con-  
 versation — & the extemporaneous manner  
 of all the persons who were inter-  
 ested in this new Species of Speculation  
 gave a true picture of a ~~house~~ <sup>Bed room</sup>  
 or of a hospital, than of a Coffee house.



the Circus - <sup>See all newspapers -</sup>  
Sewer - trap parties - ~~as well~~ exert an Arti-  
ficial stimulus upon the Negroes, and like  
~~the opinion among the Indians~~ Run among  
the Indians supply the defect of the stimulus  
of thinking. [The stimulus in ~~these~~ places of  
public ~~recreation~~ Amusement is varied by the  
difference of rank & sex which frequent them.  
Flattery from an inferior to a Superior, &  
a condescending smile from a Superior to an  
inferior, - and <sup>above all</sup> the flattery ~~from~~ [to that sex  
which is supposed to feel it most] are  
all belong to the artificial stimuli of  
Animal life.] -

4. The Love of Dress. ~~another~~. This stimulus  
is not confined in its influence wholly  
to <sup>male & female</sup> Coxcombs. ~~and~~ It acts in some  
cases upon <sup>invalids</sup> ~~men of sound understanding~~. I have heard of  
a gentleman in South Carolina who



6 The Love of fame. This passion acts in various ways, but its stimulus is most powerful & durable in military life. — It ~~removes~~ counteracts in many instances the <sup>detrimental</sup> ~~debilitating~~ effects of hunger & ~~fatigue~~ cold & labor. It has even done more. It has removed the debility which is connected with many diseases. In several instances which have come within <sup>of</sup> compass of my knowledge — it has cured the pulmonary consumption. &

7 ~~I wish I could add here that~~  
The different religions of the world.  
 Eyes — gentlemen. I hold ~~a~~ religion is, as <sup>useful</sup> of some kind to be as ~~necessary~~ to



✓ Atheism is the worst of sedatives to <sup>the</sup> ~~the~~  
 Understanding and passions.  
~~It is the~~ <sup>faith -</sup> It is the  
 abstraction of all hope - & joy - and  
 these we said formerly were two  
 of the more powerful of the inter-  
 nal stimuli. <sup>man is as naturally</sup>  
 a religious, <sup>and domestic</sup> as a social animal. X

always relieved himself from a fit  
 of melancholly by changing his <sup>drap</sup> clothes,  
 & I believe there are few people who  
 do not feel their spirits invigorated <sup>way</sup>  
 by putting on a new suit of clothes.  
 5 ~~The~~ <sup>low</sup> Novelty is an immense source  
 of agreeable stimuli - Hence we find  
 new ~~de~~ companions - new <sup>new truths</sup> studies &  
 new <sup>pleasures</sup> modes of business - new prospects -  
 new situations with respect to town &  
 country - or to different countries -



animal life, as it necessary in  
 government. - <sup>✓</sup> Religions are more or  
 less friendly to human life <sup>in proportion</sup> as they  
 elevate the understanding &  
 rest upon the passions of hope - and  
 the emotion of joy. It ~~is easy to~~ will  
 readily occur to you all that Christian-  
<sup>when perfectly understood & explained,</sup>  
 -ity has immense advantages in  
 this respect over all the religions in  
 the world. It is the natural stimulus  
 of the human mind, as much so as  
 milk and bread are the natural  
 aliment of the body. The love of money  
 - public Amusements - the love - the love  
 and ~~the love~~ of fame - of unlawful  
 as also the Stimuli of  
 pleasures - Labours - Opium and  
 Spirits! -  
 are all imperfect substitutes  
 for <sup>the</sup> its gentle - and durable stimulus  
 of the Christian religion  
 upon the system. It even surpasses  
 the effects of the love of liberty, ~~and much~~



And ~~those men~~ ~~are~~ against the  
 same violence is done to the under-  
 standing and affections by depriving  
 them of ~~the~~ a god, that is done  
 to both by ~~dooming~~ <sup>alone</sup> a man to  
 live in a cell deprived of the pleasures  
 of social and domestic life. They ~~are~~  
 egregiously mistake  
~~therefore~~ <sup>and</sup> against the evidence of reason,  
~~and the nature of man~~ <sup>and</sup> ~~who attempt to substitute the sup-~~  
~~pose~~ that he can exist without a  
 religion of some kind. The French nation  
 have lately given the most ~~inexplicable~~  
<sup>after rejecting the worship</sup>  
~~of the true God,~~ <sup>able</sup> proof of this apostasy. They have  
 yielded to the impulses of the human  
 heart in <sup>favor of an</sup> ~~its~~ object of adoration, by  
 worshipping a human Reason in the figure  
 of a prostitute picked up in the streets of Paris.



The conduct of <sup>most</sup> many ind: has  
proved this in all ages or countries.  
where the true God has been rejected,  
Nature, fortune, reason &c in his  
stead.



all exert an invigorating influence not  
only <sup>upon</sup> ~~the~~ health but upon animal  
life.

V ~~This change in~~ Then shall health  
and longevity  
be universal, and ~~as some~~ old age  
be the only outlet of human life.

This delightful change in the animal  
economy shall be brought about not  
by refinements in civilisation -  
not by science - not by liberty -  
too alas! they have all exerted their  
influence in vain ~~For~~ not in a word  
by any thing human Reason can  
do - by for they have all exerted their  
influence in vain for that purpose - but  
by the ~~sublime~~ ~~idea~~ universal prevalence



How long the world may continue to  
~~prefer substitutes~~  
~~the danger~~ to this invigorating stimulus  
 is uncertain, but the ~~present~~ <sup>time</sup> must  
 and will come  
~~to a crisis of human affairs~~  
~~as to hope that the time is not near~~  
 (if I may be allowed the expre-  
 ssion) when the excited passions  
 shall be reduced, and the body & mind  
 of man recover their original order.

Republican forms of government are  
 favorable vehicles of the <sup>pure &</sup> simple  
~~the principles~~ <sup>principles</sup> of Christian-  
 ity, and these are now <sup>struggling for</sup> ~~spreading~~  
<sup>birth in</sup> ~~this~~ many parts of the Old World. War  
 the cause of the military passions is  
 becoming ~~less~~ <sup>more</sup> obvious in many  
 countries - and even the artificial  
 stimuli of Tobacco - and Spirits  
~~are~~ are less in use than formerly



A powerful influence of the doctrines & precepts  
of the Christian Religion. — I have &c —

& Here I have hitherto said nothing  
of the <sup>influence</sup> ~~placeness~~ of comparative situa-  
-tions in all countries <sup>upon</sup> ~~with respect~~  
to animal life. I shall only observe  
here, that country people are exposed  
to more stimuli than citizens from  
a purer air - more regular labor - and  
more natural sounds. — I allude here  
to the singing of Birds. — It is remar-  
-kable that this stimulus is applied to the  
~~ess~~ system when it is most debilitated,  
that is in the mornings & evenings. In the  
Country the inhabitants <sup>of mountains & of some</sup> are exposed  
<sup>Sea Coasts</sup> to more stimuli than persons who  
inhabit a level country, or who  
live at a distance from the sea. In  
both cases the stimulus arises from pure air.



particularly in <sup>Britain</sup> - ~~Holland~~  
<sup>& Sweden.</sup>  
 and France. ~~The disease of those articles~~  
~~shows a~~ Tea & Coffee I have been  
 told are now substituting in the last  
 of those countries, not only in fam-  
 houses, but in taverns to the use  
 of distilled spirits. The disease of those  
 noxious & unnatural stimuli  
 evidently shows a diminution of hu-  
 man misery, and a hostility to  
 more rational & natural stimuli just  
 as  
 of the disinclination to wine & Bark in the  
 convalescence of a fever, shows a  
 return of the excitability to natural  
 aliment.

Thus far - Gent. have  
~~thus been~~ ~~It remains now to~~  
 I considered animal life as it respects  
 the <sup>human species,</sup> ~~species,~~ but as I conceive it



✓ And here Gent. we must extend  
our ideas of Animal life. The Deity  
seems to have delighted in Variety in  
all his works. — Should we discover the  
Stimuli <sup>to</sup> support life in man, we  
be weaker in other animals than in  
man, we must remember that this  
is no greater departure from <sup>to man</sup> their  
Affinity, than their having Life fire, or  
beauty, or intellectual powers. —

All animals more exquisite  
beings than man except man.



118  
to depend upon the same causes in  
different proportions, & differently en-  
dowed in animals of every species, it  
~~very~~ <sup>very</sup> theory requires that I should apply  
my principles to explain the state of  
life in such of them as exhibit  
phenomena which seem to con-  
tradict all that has been advanced  
upon this subject. <sup>v</sup>

1 I observe that all the animals we  
are acquainted with, even the shell  
fish - have either ~~longer~~ <sup>longer</sup>  
longer hearts - lungs - brains - nerves,  
or mus<sup>cu</sup>lar fibres. It is as yet a  
controversy among naturalists  
whether animal life can exist  
without a brain or nerves - but







119  
no one has denied muscular fibres  
and of course contractibility, or  
stimulability, <sup>to</sup> belong to animal life  
in all its shapes. —

2 All the animals we are acquainted  
with ~~do~~ require more or less air for  
their existence. — now this we now  
to be a powerful stimulus in the support  
of human life. —

3 They all ~~feed~~ feed upon substances  
which ~~to their bodies~~ are more or  
less stimulating to their bodies. It is  
true some of them take their aliment  
at long periods. Bruce tells us that

he kept two small animals called  
serpents on which the ferates, or  
horned vipers feed, for two years <sup>in a vial</sup> in <sub>the</sub>



male  
✓ The frog during its long connection  
with its female, suffers its limbs to be  
amputated without discovering the least  
mark of pain, or without relaxing  
in its <sup>hold of the object of its</sup> embraces.



120  
good health without food or sleep. Per-  
haps this period was not more in  
this animals life than 24 hours are  
to man. Its living without sleep  
is a proof of <sup>its, propulsive</sup> an uncommon portio-  
-on of original & natural excitement.

4 They all propagate, & of course feel  
the impulse of <sup>the</sup> venereal appetite.

I shall hereafter mention some facts  
from Spalanzani  
upon the subject of generation, which  
prove that <sup>some of those animals in which life</sup> ~~they~~ feel this stimulus in  
<sup>is in a feeble state</sup>  
a degree to which larger animals are  
strangers. ✓ — If all the other stimuli  
which act upon them, operate  
in the same ratio we may account  
at once for the degree & duration  
of their lives. —



connected with: p 123

¶ They ~~beasts~~ all live in a connection <sup>draws</sup> with the air. Even the snail breathes <sup>for 7 months</sup> under ground in air, thro' a pellicle or cover, which it weaves out of ~~flame~~ <sup>itself</sup> on its body, & if ~~it makes~~ <sup>it becomes</sup> it too thick, perforates to open a passage to the air. Now air we said was one of the most powerful stimuli of life. —

But it is possible life may exist in these animals ~~without~~ in the total absence of every impression, or stimulus, provided, the torpid



5 In many animals we behold evident marks of understanding and ~~reason~~ <sup>reason</sup> ~~propion~~ <sup>propion</sup>. — The Bee & the Ant exhibit many marks of the former, & where is the school boy that cannot bear testimony to the angry propions of a wasp? — ~~st~~

6 But what shall we say to the history of those animals which pass whole weeks & even long winters in a torpid state in which there appears to be an absence of all the stimuli of heat - aliment - & exercise? — This is a difficult question, but it may be answered.  
1 By supposing that they pass a



Note we have mentioned be bro't on  
suddenly. <sup>In</sup> ~~But~~ Swallows which pass this  
winter in the bottom of lakes & mill dams,  
the torpor is certainly bro't on in this  
way. —

✓ In other animals it is probable  
the stimulus of Undigested Aliment  
keeps up the motion of life, for In.  
Sturges has proved ~~the~~ by an experiment  
a frog, if cold below a certain degree  
checks digestion. — They all live —  
[turn back to p: 121]



122

degree of excitability, analogous to the length of the intervals between the times of <sup>eating</sup> ~~times~~ which we observe in other animals. —

2 That in some of them - the ~~time~~ <sup>time</sup> of digestion goes forward during the whole winter in the stomach.

There is an <sup>winter</sup> animal in S. Carolina which swallows a pine knot just before it retires to sleep - ~~which~~ <sup>so</sup> this solid substance is found in a fluid state in its stomach in the spring. — ✓

[3 The Bear is said to live upon its <sup>fat</sup> ~~fat~~ during the winter. may not a portion of latent heat be extricated from this fat in its passage from a <sup>fluid</sup> ~~solid~~ to a fluid state, and converted into sensible heat, and may not this sensible heat contribute to



*[Faint, illegible handwriting, likely bleed-through from the reverse side of the page.]*



123  
keep up <sup>some of the</sup> ~~the~~ motions of life ~~go to p. 121~~

1 Let us be careful how we limit our ideas of animal life. It may consist of motions - too small for our perceptions.

3 Let us be careful - how we limit our ideas of excitability. - It may exist under circumstances, & for a length of time of which we can form scarcely any conceptions: ~~It would be the case~~

2 Let us be careful - how we limit the force or degree of stimuli. In the torpid hibernation of animals, the excitability of their bodies may be so much accumu-

-lated, or so exquisitely formed as that portions of heat - light - & ~~one degree of heat and sound~~ which ~~are~~ <sup>which</sup>

descend below all calculations may act upon <sup>them</sup> with the ~~same~~ <sup>a</sup> force ~~which~~ <sup>is scarcely</sup> credible.

~~possess~~ life. ~~is it~~ Had we been told

but / After admitting the doctrine of



*[Faint, illegible handwriting in cursive script, likely bleed-through from the reverse side of the page.]*



124 <sup>all the</sup>  
Life being the product of stimuli that  
act in the waking state) that it could  
exist in that state of Darkness - Silence  
& inactivity which takes place in sleep,  
we should have ~~that~~ ~~long~~ found it as  
difficult to ascert to ~~the~~ it, as to the  
continuance life in certain <sup>tropic</sup> animals,  
~~during a long~~ Sleep I said formerly is  
a tendency to death. The hibernation  
of an animal is only a second grade  
in the scale which marks the progress  
of life to its ~~depos~~ extinction in death.

7 We said formerly that Heat was a pow-  
-erful & universal stimulus to producing  
animal life. But what shall we say  
to those animals which live in a cold  
element, and whose blood is scarcely  
above that point at which we behold



+ It is very remarkable that the vital powers, or <sup>as</sup> it might be expressed, the Stimulability of animals is always in proportion to ~~their~~ their deficiency of Sensitive powers. This is most evident in the polypi which when cut to pieces reproduce themselves. - In being cut - it is probable they feel little or no pain. also frogs.

✓ I might illustrate it still further from the analogy of plants in which life & growth are supported wholly by Stimuli - particularly of heat & light - But this belongs to the Professor of Botany. Another professorship. - I shall only remark that the seed of plant resembles an animal body in having no principle of life within itself. It preserved ~~and~~ in a



the beginning <sup>of</sup> frost? why - that heat  
& cold are relative terms - and that  
different animals require very different  
degrees of heat - and that 32° ~~is~~ <sup>are</sup> ~~is~~ <sup>are</sup>  
as stimulating to the bodies of certain  
animals ~~as~~ <sup>as</sup> 80° or 90° are to the human  
body. +

Thus Gent: have I enumerated all  
the remote causes which produce <sup>animal</sup> human  
life, and traced them <sup>this</sup> all the stages of  
~~life, it remains yet to be seen~~ <sup>and</sup> ~~of~~ <sup>the</sup>  
various phenomena of <sup>the</sup> human life, - this different nations,  
and pursuits of men, and this all the  
classes of animals which inhabit  
our globe. ✓

My object has been simply animal  
life. Divines tell us that man besides  
this - has a rational - & a spiritual  
life. I believe in each of them, & that



Drummers for years, or if sunk below  
the stimulating influence of <sup>in the earth</sup> heat &  
Air it never discovers the least sign  
of vegetative ~~possess~~ life. This fact has  
been urged as a proof of a <sup>vital</sup> principle in

[I consider this, as a striking argu-  
-ment in favor of the <sup>existence</sup> ~~separate~~ of the  
Soul in a separate state of ~~existence~~  
after death.] — the human body, but  
the explanation that has been given  
of the only cause of the life of a seed,  
converts it into a strong argument  
in favor of the truth of the theory I  
am now delivering. —



they both exist <sup>in</sup> ~~as~~ <sup>in</sup> themselves under cer-  
tain circumstances upon the human  
body. — But ~~was~~ the animal life <sup>ch.</sup> ~~is~~  
has been the object of our inquiries ~~is~~  
~~is~~ <sup>wholly</sup> capable of existing, independant of  
either of them. Hence we see even ~~in~~  
not only live — but enjoy good health  
who are destitute of reason, & of ~~sens-~~ <sup>sens-</sup>  
ibility in all the moral powers. Witness  
they in famous  
seven whose character is so ably drawn  
by the Duke ofully. —

On what part of the system do the stimuli which have been mentioned act? - On the muscular fibres they produce contraction ~~of~~ <sup>in</sup> motion - On the nerves they produce - Sensation & perception, judgement, reason, or <sup>words</sup> in other <sup>words</sup>. & in the Brain they produce thought.



perfect  
✓ or in other words, life in man  
consists of in motion - sensation &  
thought.

& good health consists in the Unity  
or equable diffusion of this motion &  
sensation ~~to~~ over every part of the body, and in  
the free and easy exercise of all  
the faculties of the mind. -



127 muscular  
~~or perceptions~~. There may be contraction  
without nerves - sensation without  
thought - and thought without sensa-  
-tion. <sup>opportunities & directions of the</sup> many ob-  
-servations fully establish the truth  
of each of these propositions. - I shall  
speak more particularly of each of them  
under the head of the nervous system.

Life  
~~The proximate cause~~ <sup>sensation & thought</sup> ~~of~~  
Life gentlemen is motion excited by  
Stimuli. <sup>Life</sup> It is as much an effect of  
impressions upon <sup>a peculiar species</sup> ~~bodily~~ ~~specific~~  
of matter, as sound is of the stroke of a  
hammer upon a sonorous body. Life  
~~It~~ <sup>It</sup> is a quality, & not a principle.  
This is the natural inference from y:  
facts which I have mentioned. I exclude



as certainly as innate ideas or vision.



therefore, the intelligent principle of  
 Whyt - the living principle of Boerhaave -  
 the *Anima medica* of Stahl - and the  
*Vires naturae medicatrices* of Cullen +  
 wholly form my system of medicine.  
 - Every phenomena <sup>animal</sup> of life may be ex-  
 -plained by ~~some~~ principles which occur  
 in ~~the works of nature~~ <sup>those</sup> in which  
 there can be no more presumption  
 of intelligence - or ~~an~~ even a conserving  
 principle than there is ~~in them~~ in  
 in air - fire - & water. -

Should it <sup>be</sup> asked what is that pe-  
 -uliar organization of muscle - nerve -  
 & brain which enables them ~~either~~  
 to emit <sup>life</sup> ~~light~~ when acted upon  
 by stimuli? - I answer, I do not







know. — The great Creator who has not  
~~left himself without~~ <sup>established</sup> a witness in the  
~~natural~~ for himself in every part of  
the ~~natural~~ natural, as well as the  
moral world — and by bounding our  
inquiries, has kindly prevented our  
forgetting his unsearchable wisdom,  
or leaning too much <sup>upon</sup> the strength  
of our own <sup>understandings</sup> intellectual powers. —

Mohammed once said that he should  
believe himself to be a God, if he could  
bring down rain <sup>from</sup> the clouds, or  
give life to an animal. It belongs  
<sup>true</sup> exclusively to the God of the Christians  
& sensation to as  
to endow matter with motion, and to  
enable them to produce thought,  
make it capable under peculiar  
circumstances of <sup>such an</sup> organization, <sup>as</sup>



✓ Upon reviewing the <sup>causes</sup> subjects of animal life  
as they have been explained <sup>it appears that</sup> ~~three~~ <sup>unimportant</sup>  
the doctrine is not merely speculative,  
~~Observations naturally suggest themselves~~  
but is of

~~+ That the Theory of animal life is of a~~  
~~speculative kind of Physi? to the pathology~~  
immense application in <sup>more life</sup> inquiring into the  
of the practice of Physic. ~~is not~~  
~~causes of disease. This will appear~~  
~~in our future lectures. It is the key stone~~  
~~hereafter in every lecture upon Pathology.~~  
~~of~~

<sup>effectually</sup>  
The Theory I have delivered, cuts the joints  
of the Vises naturales medicatrices, ~~It exposes~~  
~~these occult powers~~ and in doing this, it  
not only removes a large mass of rubbish  
from medicine, but it removes <sup>at the same time</sup> one  
of the foundations of the Epicurean or Athe-  
-istical philosophy. Admit <sup>the</sup> ~~a~~ principle  
we call - nature to act with intelligence  
in the human body - and we open a  
door for ~~the~~ a principle under the



to produce <sup>from 130.</sup> ~~producing~~ life <sup>under</sup> the impression of Stimuli. ✓

With this we finish the history  
of animal life. I <sup>feel as if I had</sup> crossed a ra-  
pid & dangerous stream. Whether I  
have gained the opposite shore <sup>with my head</sup> clean,  
or covered <sup>and</sup> with mud, and weeds, I  
leave wholly to your determination.

### On animal Heat

[In the first view which I supposed  
myself to have taken of a human Being  
I was struck not only with his pos-  
sessed life, ~~but~~ which consisted in  
sensation, <sup>& sensation</sup> excited by stimuli, but upon  
Heat likewise. Upon approaching  
him I fancied that I took him by  
the hand. I found it warmer than  
go to p: 131



same name to act in every part of  
 the Universe - ~~to the exclusion of~~  
 and <sup>eternal</sup> eternal creator. By the theory I  
 have proposed, we ~~now~~ render the existence  
 & support of animal life, the immediate  
 Act of ~~its~~ a Supreme Being, by the in-  
 strumentality of causes which are con-  
 stantly under his direction, <sup>+</sup> & ~~therefore~~ it is  
 as true in <sup>philosophy</sup> ~~science~~ as it is  
 in religion. <sup>+</sup> ~~that~~ <sup>Being "He"</sup> ~~is~~ is indeed the  
 possessor of men <sup>"that in him we live & move & have our Being"</sup> - <sup>turn over to p 131. 3.</sup>  
 42 The theory I have delivered ~~renders~~ <sup>reduced</sup>  
 the mysterious subject of animal life to  
 a level with many, ~~of the~~ not only of  
 the operations of nature, but of likewise  
 of Art. It is in every respect as truly  
 mechanical, as the passage of a ship,



or ~~the~~ motions of a ~~wood~~ mill, under the impulse, or stimulus of the wind, or water. It differs from them only ~~in this~~ <sup>in</sup> the matter or <sup>act</sup> which the stimuli which produce life, being of a nature peculiar to itself. —

It is agreeable to trace the ~~by this theory~~ <sup>of this theory</sup> ~~and gives support~~ from its analogy with the operations of the will as maintained by <sup>Hartley</sup> ~~Edwards~~ & Priestley.

Those writers have clearly proved that ~~motives~~ motives are to the will what stimuli are to animal matter, and that the notion of the will possessing a self determining power <sup>within itself</sup> is as absurd as the notions of ~~the~~ vital principles, or <sup>of</sup> the healing powers

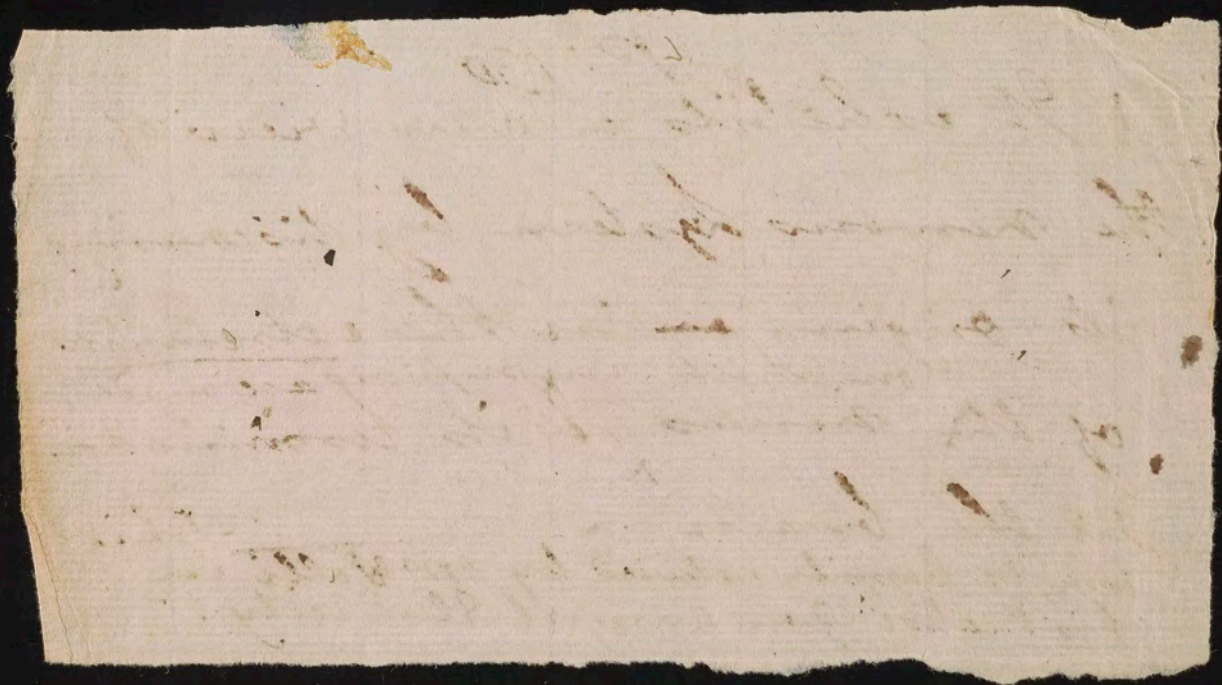
of nature. — Here we may admire the Unity of truth, & the simplicity or Oneness of ~~the~~ the means by which the creator governs his Universe. ]



P: 130

! It exhibits a new view of  
the nervous system by discussing  
its origin, ~~as~~ in the extremities  
on which impressions are made,  
of the nerves, & its termination  
in the brain. This  
idea is happily extended by Mr. Walli in  
his treatise upon Animal Electricity.







from the impulses of the winds or tide;

But this they do more - it prostrates  
in the most humble posture  
the mind and body of man at the footstool  
of the divine power, ~~and thereby~~ - As well

might an oak tree which is tributary  
to <sup>the</sup> earth - <sup>to</sup> water - <sup>to</sup> air - and the heat of

the sun cherish for its ~~own~~ saps and foliage,  
<sup>cherish</sup> ~~entertain~~ pride in its existence, as the

creature man, - for he owes his life  
every moment to the influences of

causes which ~~are~~ are as much in-  
dependant of <sup>him</sup> ~~himself~~, as the elements are  
of a common vegetable. ~~It was~~  
of the ~~existence the steady state~~

probably from this view of the dependant  
state of animal life in man, that ~~he~~ <sup>it</sup> is

~~so~~ compared in the scriptures to the  
flower - to grass - to a <sup>scarcely</sup> ~~the~~ weaver's shuttle -  
and all of which show that he exists,

only from necessity, and not from any  
inherent principle of life or thought. <sup>I think</sup>  
~~subject to~~ <sup>of</sup>



the heat of the surrounding Atmos-  
 -phere. Upon feeling his face - laying  
 my hand upon his face & breast, I  
 perceived the same agreeable temper-  
 -ature. ~~I~~ X In contemplating the  
 human body we are  
~~him, I imagined that he informed~~  
~~me that this heat which I was so~~  
~~much struck with, was not only~~  
 living the same in every part, of his body,  
 & with its uniformity  
~~that it was the same in all~~  
 by its living & little  
 seasons & climates, and ~~as~~ altered  
 by the any of the conditions of the  
 system as they appear in the different  
 stages of human life. ~~I~~ imagined  
~~that he added further, that this heat~~



have said that the Doctrine of Animal  
Life which I have taught is of extensive  
application in the practice of Physic.

- yes Gent: the whole secret of prescri:  
-bing in all diseases consists in  
knowing when to ~~abstract~~, & when to  
~~apply Stimuli~~ - in what manner,  
& in what proportion we are to dimi:  
-nish, or encrease Animal life, by  
the abstraction, <sup>of natural, or by the</sup> addition of  
artificial Stimuli <sup>from, and to</sup> ~~to the body~~ the  
whole, or particular parts of the body.  
However complicated the materia medi:  
-ca ~~has~~ may be, all medicines there:  
-fore be clasped under two heads, viz:  
Sedatives & Stimulants - ~~and known~~ <sup>for</sup>  
~~all~~ diseases (with a few exceptions)



is the same in every individual of the human race. ) The business of the present lecture is to inquire into the cause of the phenomena <sup>& cause</sup> which ~~have been~~ <sup>of animal heat</sup> ~~mentioned~~ —

Several Hypotheses have been proposed to account for animal heat. I shall mention <sup>a few</sup> ~~most~~ of them, & then propose a theory which I conceive to be liable to <sup>the</sup> ~~fewest~~ <sup>most</sup> objections. —

1 Dr Thomson has taken a good deal of pains in the mid Essays of Edin<sup>2</sup> to prove that animal heat depends upon <sup>a</sup> fermentation taking place in the blood, more especially a fermentation of the putrefactive kind. To this I object

1) That we have no proofs of a fer-  
mentation



~~all consist of too much, or too little~~  
~~motion and sensation, or in other words~~  
~~that predisposes to it~~  
~~of too much, or too little animal~~  
~~life, either in the whole, or in parti-~~  
~~-cular parts of the body. — return to~~  
p130. h°3.

✓ a power to resist putrefaction is  
said to be one of the properties of  
animal life. —



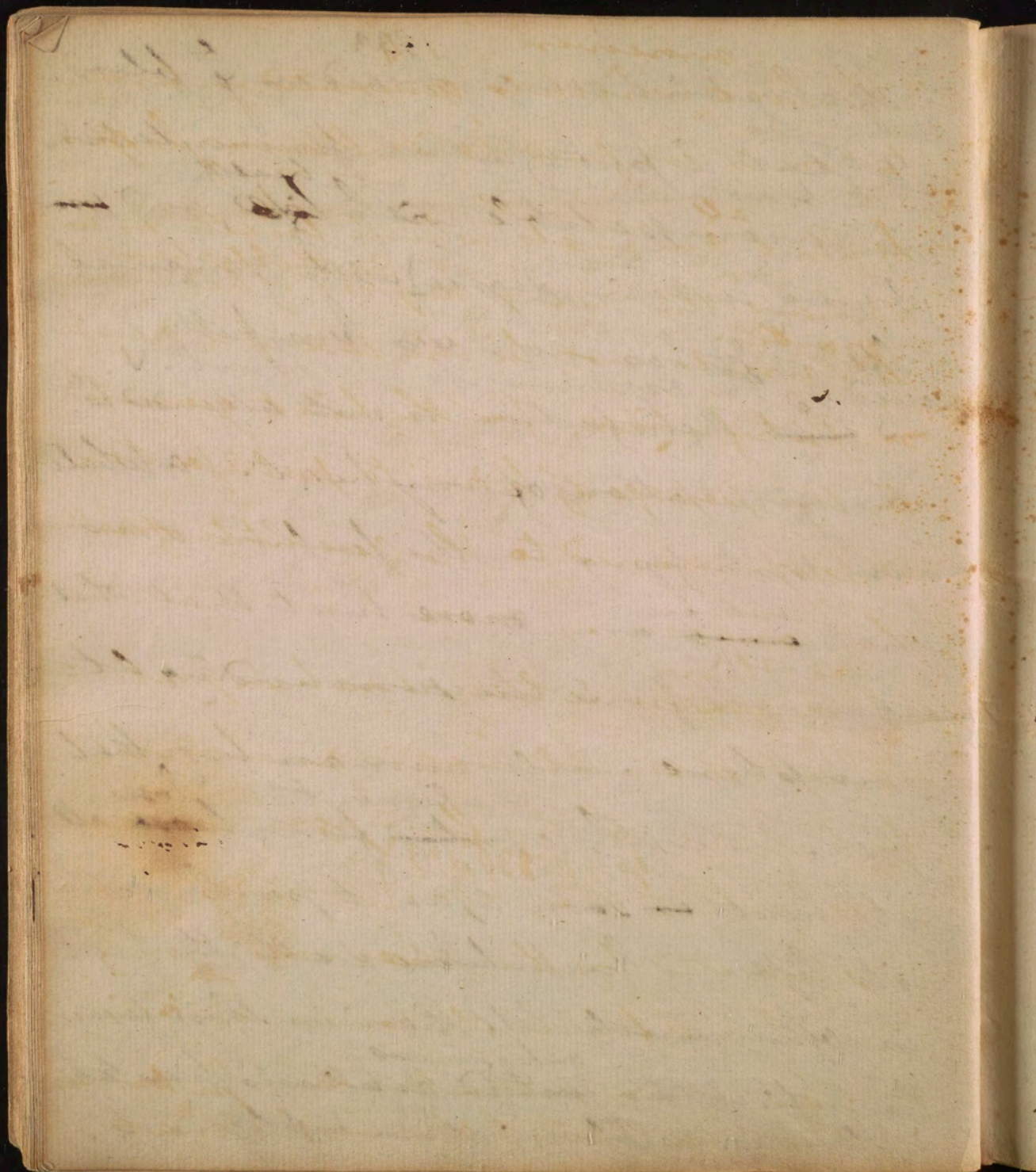
of any kind going forward in  $\frac{2}{3}$  blood.

2 That a putrefactive fermentation in the blood is incompatible with <sup>health</sup> life, and ~~for~~ (beyond "certain degree") with animal life. It has moreover been fully disproved by the experiments of Dybster. & the

3 That Putrefaction is not attended w:

the generation of any heat. — a whale in putrefying on the seashore does not <sup>contain</sup> ~~emit~~ any ~~more~~ heat than what it derives from the surrounding atmosphere. — a human body that perishes with a <sup>malignant</sup> ~~putrid~~ fever <sup>loses</sup> ~~loses~~ all its heat ~~as~~ soon after it parts with its life. — Even before death, the heat is often much less than in those fevers in which no <sup>gangrenous</sup> ~~putrid~~ diathesis has taken place as in Rheumatism & Plurisy.







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moreover  
The heat which is generated in fermentation is confined to its various stages.

If that <sup>all</sup> animals which breathe as we do, have the same degrees of heat. <sup>E.g. the Elephant & mouse.</sup> Now this would not be the case, if it depended on putrefaction, for the heat generated by the passage of bodies to putrefaction is proportioned to the quantity of matter they contain.

A <sup>2<sup>d</sup> theory</sup> Hypothesis which has been proposed is, that Animal heat is generated by the friction of the fluids against the solid parts of the body. <sup>go to p: 136 n° 3</sup> [This <sup>theory</sup> Hypothesis is supported by the phenomenon of heat being frequently connected with the force of the circulation. In answer to this, Hypothesis I observe 1<sup>st</sup> That



5 The view of animal life which I have given furnishes a new argument in favor of the will; acting only from ~~desire~~ necessity, for the motives being ~~the~~ as much the cause of all its exercises, as stimuli are the cause of animal life. If this were not true, there would be a defect of <sup>truth</sup> over unity in the plans of the Creator.

6 By ~~the~~ <sup>the</sup> doctrine of animal life which has been delivered, leads us to ~~to~~ <sup>that sublime &</sup> ~~view~~ <sup>just view</sup> of the Deity which is given of him in the scriptures, viz: as proposing life within himself. ~~To~~ <sup>the</sup> ~~accident~~



~~Principle of life to any other~~ This  
 divine prerogative has never been  
 imparted but to One Being, and that  
 is the Son of God - This appears from  
 that declaration of St John Chap: V. 26  
 "for as the father hath life in himself,  
 so hath he given to the son to have  
life in himself." - hence he is  
 called in the new testament "the life  
 of the world" - "the prince of life", &  
 in many place life itself. - This  
 view of ~~this~~ the independant <sup>of</sup> life of  
~~the son of god~~ <sup>on</sup> circumstances which  
 create & support it in man exalts  
 the Son of God infinitely above simple  
 humanity, and establishes his



divinity from reason ~~as~~ as well  
as from revelation. ~~Truth~~ you  
re Gent: is an Unit, and the more  
we discover of it in ~~the~~ one branch  
of knowledge, the more we shall  
discover of it in other. <sup>Physiology</sup> ~~Medicine~~,  
and medicine above all other sciences,  
lead to first principles in theology,  
metaphysics,  
morals & religion.

<sup>ly</sup> ~~to do this~~ The doctrine of animal  
life which I have taught <sup>will enable</sup> ~~lead~~ us  
to decide upon the long agitated con-  
-troversy of innate ideas. It leads  
us to reject them altogether,  
and to ascribe them wholly to



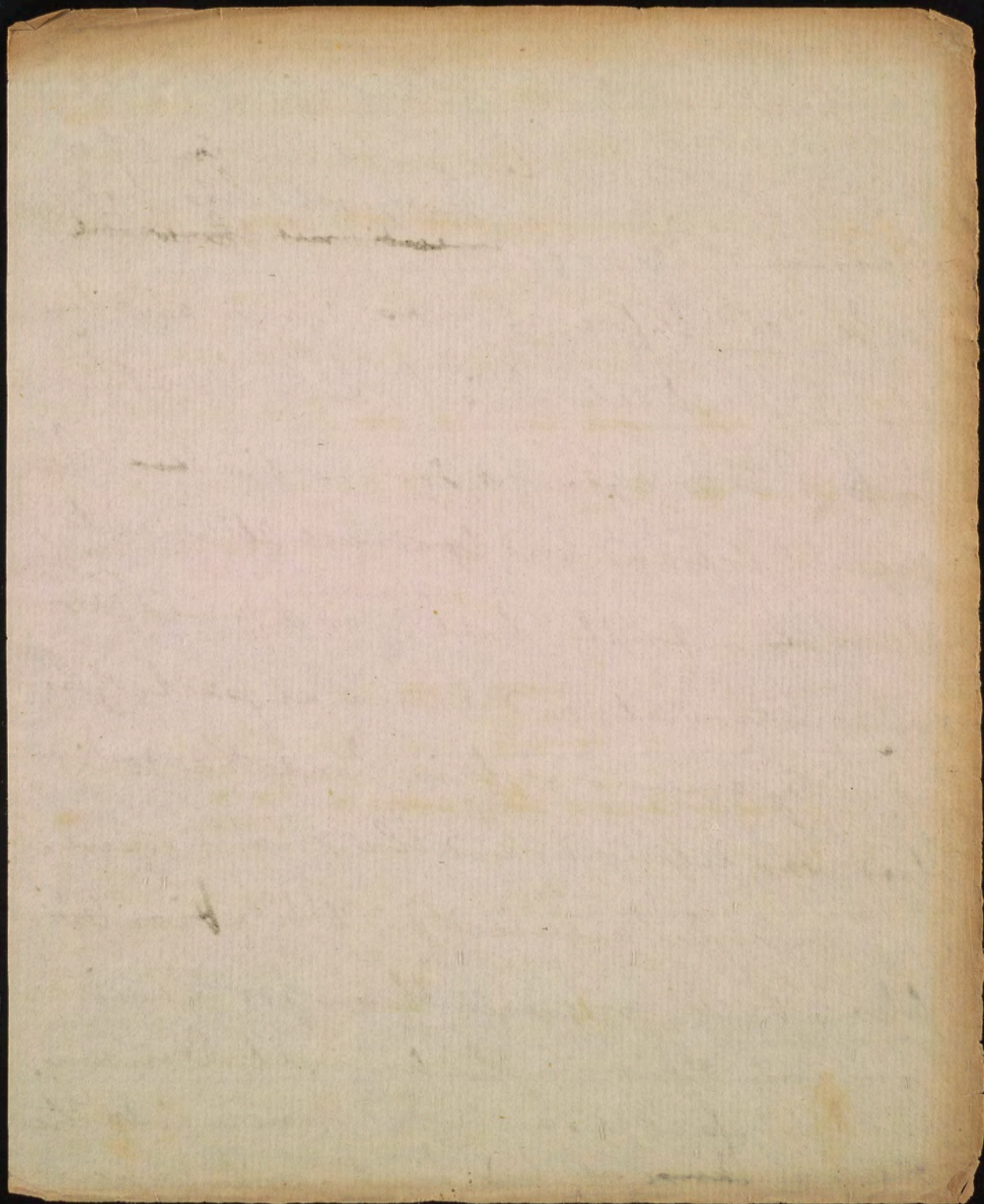
the influence of external impressions  
 acting upon a capacity in the  
 mind to receive ideas. ~~Lead to~~ <sup>turn back</sup> to

[From these Observations you  
 will perceive that truth is a Unit,  
 and the more we discover of it in  
 one branch of knowledge, the more  
 we shall discover of it in others.  
 Physiology & medicine above all  
 other Sciences lead to just ideas  
 principles in Theology - ~~the~~ religion  
 morals & metaphysics.] -



In the View which I have given in the  
Origin of Animal life in man in the  
Garden of Eden, I <sup>supposed his body</sup> ~~mentioned the~~ ~~proposed~~  
to be cold before it was animated by  
the Air which his Creator breathed  
into his lungs. No sooner did these  
Organs expand and Contract Alternately,  
than ~~the~~ a gentle heat was diffused <sup>over</sup> ~~at~~  
every internal and external part of his  
body. By means of this heat the solid  
blood was liquified, and the Nerves  
and muscles acquired sensibility ~~imitabi-~~  
-lity, which prepared them for their im-  
-portant offices in the Animal Economy.  
Our business at present is to inquire into the  
Origin ~~and cause~~ of this heat. For ~~this~~ purpose







V It is no Objection to this Argument  
that cream acquires some heat when  
agitated against the sides of a Church<sup>n</sup>,  
~~but~~ <sup>for</sup> this depends upon the decomposition  
or fermentation of the cream in its  
passage into butter.



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heat cannot be produced by friction  
unless the bodies which act upon  
each other are uneven. <sup>a</sup> fluid  
~~whenever~~ acquires a particle of  
heat by being shaken in ~~the~~ a Vial.  
- now the blood Vessels we have known  
have no uneven surfaces, and the par-  
-ticles of blood have no roughness in  
them. ✓

2 In producing motion by friction, it  
is necessary that one of the bodies which  
is moved should be in a fixed state.  
a Rope in running thro a pulley gene-  
-rates no heat - for neither of them is  
at rest. now - we know that neither  
the blood vessels, nor the blood in a live  
healthy animal are ever at rest -  
consequently no heat can be produced



# ~~The~~ It is strictly true therefore what is  
 said by the Schoolmen "nil est in intellectu  
 quod non prius fuit in sensu". Were it  
 possible for a child to grow up to manhood  
 without the use of any of ~~the~~ <sup>the</sup> senses of  
 hearing - seeing - smelling - tasting, and  
 touch - he would not possess a single  
 idea of any material object. He would  
 be with respect to our globe as desti-  
 tute of thought as an oak tree. ~~pld~~  
~~the~~ Ideas excited - they are go back to 7  
 raw materials - but no  
 ideas without impression see. p: 131.

It is a proper test of truth  
 in science to find it accord with  
 Revelation. now it teaches: 1 natural  
 state of man <sup>vs</sup> Death after the fall.  
 2 his life in L<sup>t</sup> 3 the first



on good health & long life - equable stimulus  
& great commandment to love  
God to be founded in reason con-  
sidering that he not only originates  
but supports life.

no objection to this doctrine.  
The creation of a soul as related  
by Moses. It means animal life  
was infused - or the capacity of  
body for emitting life was com-  
plete.

But: on poisons - illustration &c  
x & we learn from this doctrine that  
"semper preservatio, perpetua creatio"  
- every hour - every moment we are  
the subjects of creat<sup>r</sup> power as much as  
when Adam came out of the hands of  
his creator. Each Spring a new creation.  
In psalm - thou & they die &c



